

Appendix 1.

Analysis of immunogenic regions of PspA protein from *S. Pneumoniae* strain Rx1.

Immunogenic regions are indicated by asterisks underneath the sequence.

Name: surface protein pspA precursor - Streptococcus pneumoniae

Organism: (Streptococcus pneumoniae)

Time and Date: 3:15 pm, March 27, 2000

References: Reference 1:

Journal: J. Bacteriol. (1992) 174:601-609

Residues: 1-619

Reference 2:

Journal: Infect. Immun. (1991) 59:1285-1289

Residues: 32-76

	10	20	30	40	50	
1	EESPVASQSKAEKDYDAAKKDAKNAKKAVERDAQKALDDAKAAQKKYDEDQ					50
	5*****					52
	3*****			29*****		
	10	20	30	40	50	
51	KKTEEKAALKAASEEMDKAVAAVQQAYLAYQQATDKAAKDAADKMDIEA					100
	*****	66*****	73*****			
					78**	
	10	20	30	40	50	
101	KKREEEAKTKFNTVVRAMVVPEPEQLAETKKKSEEAKQKAPELTKKLEEAK					150
	91*****	95*****		123*****		
	****		101*****	122*****		
	89*****		116*****			
	10	20	30	40	50	
151	AKLEEAEEKKATEAKQKVDAAEVAPQAKIAELENQVHRLEQELKEIDSESES					200
	133*****		140*****		15	
	130*****			145*****		
	10	20	30	40	50	
201	EDYAKEGFRAPLQSKLDAKKAKLSKLEELSDKIDELDAEIAKLEDQLKAA					250
	8*****		168*****			
			166*****		1	
	10	20	30	40	50	
251	EENNNVEDYFKEGLEKTIAAKKAELEKTEADLKKAVNEPEKPAPAPETPA					300
	179*****	185*****		206*****		
	76****	182*****	195*****			

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      10      20      30      40      50
301  PEAPAEQPKPAPAPQAPAPKPEKPAEQPKPEKTTDDQQAEEYARRSEEE  350

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	10	20	30	40	50	
351	YNRLTQQQPRKAEKPAPAPK	TGWKQENG	MWIFYNTD	GSMATGWLQ	NGSW	400

	10	20	30	40	50
401	YYLNSNGAMATGWLQYNGSWYYLNANGAMATGWAKVNGSWYYLNANGAMA.				450

	10	20	30	40	50
451	TGWLQYNGSWYYLNANGAMATGWAKVNGSWYYLNANGAMATGWLQYNGSW				500

	10	20	30	40	50	
501	YYLNANGAMATGWAKVNGSWYYLNANGAMATGWVKDGD	TDWYYLEASGAMH				550

	10	20	30	40	50	
551	ASQWFKVSDKWYYVNLGALAVNTTVDGYKVNANGWV					588

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Motif #: 3                      Range: 6 - 13
Motif:  * [DEGHKNPQRST] [DEHGKNPQRST] [DEHGKNPQRST] [DEHGKNPQRST] * [DEHGK
QRST]*
Ref.:  WISHART, D.S. UNPUBLISHED
Name:  GENERALIZED B CELL EPITOPE PATTERN
Motif #: 5                      Range: 8 - 15
Motif:  * [DEGHKNPQRST] [DEHGKNPQRST] * [DEHGKNPQRST] [DEHGKNPQRST] [DEHGK

```

QRST)*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 29 Range: 42 - 49

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGK
QRST)*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 52 Range: 49 - 56

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGK
QRST)*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 66 Range: 63 - 70

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGK
QRST)*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 73 Range: 81 - 88

Motif: *[DEGHKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGKNPQRST][DEHGK
QRST)*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 78 Range: 97 - 104

Motif: *[DEGHKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGKNPQRST][DEHGK
QRST)*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 89 Range: 104 - 111

Motif: *[DEGHKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGKNPQRST][DEHGK
QRST)*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 91 Range: 107 - 114
Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGK
QRST]*
Ref.: WISHART, D.S. UNPUBLISHED
Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 95 Range: 119 - 125
Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKN
RST]*
Ref.: WISHART, D.S. UNPUBLISHED
Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 101 Range: 127 - 133
Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKN
RST]*
Ref.: WISHART, D.S. UNPUBLISHED
Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 116 Range: 132 - 139
Motif: *[DEGHKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGKNPQRST][DEHGK
QRST]*
Ref.: WISHART, D.S. UNPUBLISHED
Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 122 Range: 139 - 146
Motif: *[DEGHKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGKNPQRST][DEHGK
QRST]*
Ref.: WISHART, D.S. UNPUBLISHED
Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 123 Range: 142 - 149
Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGK
QRST]*
Ref.: WISHART, D.S. UNPUBLISHED
Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 130 Range: 153 - 160
Motif: *[DEGHKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGKNPQRST][DEHGK
QRST]*
Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 166 Range: 226 - 233

Motif: *[DEGHKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGKNPQRST][DEHGK
QRST]*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 168 Range: 229 - 236

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGK
QRST]*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 176 Range: 250 - 256

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKN
RST]*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 179 Range: 252 - 259

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGK
QRST]*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 182 Range: 260 - 267

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGK
QRST]*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 185 Range: 261 - 268

Motif: *[DEGHKNPQRST][DEHGKNPQRST]*[DEHGKNPQRST][DEHGKNPQRST][DEHGK
QRST]*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 195 Range: 275 - 282

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGK
QRST]*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN

Motif #: 199 Range: 281 - 290

Motif: ***[DEHKG][VAILMFWTY][VAILMFWTY][DEHKGSTNQ]***

Ref.: ROTHBARD, J.B. ET AL., EMBO J. 7:93-101 (1988)

Name: GENERALIZED T CELL EPITOPE PATTERN

Motif #: 206 Range: 288 - 295

Motif: *[DEGHKNPQRST][DEHGKNPQRST][DEHGKNPQRST][DEHGKNPQRST]*[DEHGK
QRST]*

Ref.: WISHART, D.S. UNPUBLISHED

Name: GENERALIZED B CELL EPITOPE PATTERN